



U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

# Advisory Circular

**Subject:** CREW RESOURCE MANAGEMENT  
TRAINING

**Date:** 2/25/97  
**Initiated by:** AFS-210

**AC No:** 120-51B  
**Change:** 2

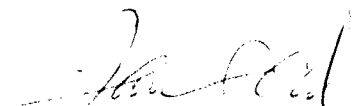
1. PURPOSE. This change transmits changes to Appendix 3, Appropriate CRM Training Topics -- (FAR Parts 121 and 135 Operators). This appendix is being revised because accident investigations conducted by the National Transportation Safety Board have revealed that many accidents are caused by crewmembers who may not have been knowledgeable of and/or properly trained in Crew Resource Management.

The Change number and date of changed material, which is indicated in the margins by asterisks, are carried at the top of each page. Added pages having no new material also carry the new change number and date. Pages having no changes retain the same heading information.

2. PRINCIPAL CHANGES. Appendix 3, paragraph 2, provides additional CRM training topics.

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APPENDIX 3. APPROPRIATE CRM TRAINING TOPICS --  
(FAR PARTS 121 AND 135 OPERATORS)

1. BACKGROUND INFORMATION.

a. Research findings suggest that CRM training can result in significant improvements in flightcrew performance. CRM is seen as an effective approach to reducing flight errors and increasing aviation safety.

b. Accident investigations conducted by the National Transportation Safety Board (NTSB) reveal that many accidents are caused by crewmembers who may not have been knowledgeable of and/or properly trained in CRM.

2. TRAINING TOPICS, PRINCIPLES, AND TECHNIQUES. CRM training is recommended which includes the curriculum topics described in paragraph 11 of the advisory circular and the topics, principles, and techniques which follow:

a. Theory and practice in using communication, decisionmaking, and team building techniques and skills.

b. Theory and practice in using proper supervision techniques, i.e., captains working with first officers.

c. Theory and practice in selecting and using interventions needed to correct flying errors made by either pilot, especially during critical phases of flight. These interventions may include, but not be limited to, communication, assertion, decisionmaking, risk assessment, and situational awareness skills.

d. During Line Operational Simulation training, information, and practice of nonflying pilot functions, i.e., monitoring and challenging pilot functions, and monitoring and challenging errors made by other crewmembers for flight engineers, first officers, and captains. Training will alert flightcrews of hazards caused by tactical decision errors which are actually errors of omission. Practice in monitoring and challenging errors, especially during taxi operations, should be included. These skills are important to minimize procedural errors which may occur as a result of inadequately performed checklists.

e. Training for check airmen in methods which can be used to enhance the monitoring and challenging functions of both captains and first officers.

f. Training for new first officers in performing the nonflying pilot role to establish a positive attitude toward monitoring and challenging errors made by the flying pilot.

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(FAR PARTS 121 AND 135 OPERATORS) (Continued)

g. Training for captains in giving and receiving challenges of errors.

h. Factual information about the detrimental effects of fatigue and strategies for avoiding and countering its effects.

\* i. Training for crewmembers which identifies conditions in which additional vigilance is required, such as holding in icing or near convective activity. Training should emphasize the need for maximum situational awareness and the appropriateness of sterile cockpit discipline, regardless of altitude.

j. Training for crewmembers in appropriate responses when passengers intimidate, abuse, or interfere with crewmember performance of safety duties. Training should address crew coordination and actions which might defuse the situation. See AC 120-65, Interference with Crewmembers in the Performance of Their Duties, dated October 18, 1996. Training should include specific communication topics, such as conflict resolution.

k. LOFT or Special Purpose Operational Training (SPOT) for cockpit crewmembers which address appropriate responses to the effects of a blocked pitot tube. Emphasis should be on situational awareness, inquiry/advocacy/assertion, and crew coordination, when flight instruments act abnormally.

l. LOFT or SPOT for cockpit crewmembers which contain a controlled flight into terrain scenario. Emphasis should be on prevention through effective communication and decision behavior. The importance of immediate, decisive, and correct response to a ground proximity warning should also be addressed. \*

3. APPROPRIATE TRAINING INTERVENTIONS.

a. The most effective CRM training involves active participation of all crewmembers. LOFT sessions give each crewmember opportunities to practice CRM skills through interactions with other crewmembers. If the training is videotaped, feedback based on crewmembers' actual behavior, during the LOFT, provides valuable documentation for the LOFT debrief.

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APPENDIX 3. APPROPRIATE CRM TRAINING TOPICS --  
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b. CRM training can be presented using a combination of the following training interventions:

- (1) Operator in-house courses.
- (2) Training center courses.
- (3) Special Purpose Operational Training.
- (4) LOFT sessions.
- (5) Computer Based Training courses.

